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| **From:** | Boyd, Andrew |
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| **To:** | Williams, Jonathan |
| **Cc:** | Sheldrake, Beth; Valdez, Heather; McArthur, Lisa; Matthews, Julie; Connery, Shannon |
| **Subject:** | FMC - RCRA Ponds: Background on RCRA Consent Decree Pond Closure and Waste Treatment Decisions and the Tribes' objections |
| **Attachments:** | FMC RCRA CD Response to Commments Excerpt.pdf |

As requested, I'm providing summary information and background on the Shoshone-Bannock Tribes' objections and legal challenges to the 1999 RCRA Consent Decree (CD) requirement to cap and close the RCRA ponds in place. The Tribes had a number of objections to the CD other than the objection to capping the RCRA pond waste, including objections to the required LDR Treatment Plant for phossy wastes.

The CD required that an LDR Treatment Plant be designed and constructed to meet certain RCRA standards and then be used to treat phossy wastes generated at the Facility after the LDR Treatment Plant became operational. Until the LDR treatment Plant became operational, the CD permitted phossy waste to be placed in lined ponds provided certain requirements to ensure protectiveness were met. The CD also required waste in the new Pond 18 to be removed and treated in the LDR Treatment Plant when it became operational, but that requirement was later revised to allow the Pond 18 waste to be capped in place like the other RCRA Ponds. That change was made with the consent of the Tribes. FMC shut down its production operations in 2001 before the Treatment Plant became operational and the Treatment Plant was dismantled. To see the CD requirements for the Treatment Plant go to:
http://yosemite.epa.gov/r10/CLEANUP.NSF/webpage/RCRA%20Hazardous%20Waste%20Management%20at%20FMC?OpenDocument
Under FMC Settlement Documents click on Attachment A and go to Section II, and also Appendix 1.

The Tribes submitted comments on the 1998 proposed CD during the public comment period. The comments included objections to the CD requirement to cap the RCRA pond waste in place, and the Tribes' contention that the LDR Treatment Plant was essentially an incinerator that would result in increased air pollution and dangerous emissions. I've attached the DOJ and EPA responses to the Tribes' comments on pond closure and the LDR treatment Plant, which were filed with the Court as part of the U.S. motion to enter the CD following the public comment period.

In addition to submitting comments on the proposed CD, the Tribes also filed a motion with the court to intervene, which was granted. The court allowed the Tribes to present objections to the U.S. motion to enter the CD. The court considered the objections and entered the Consent Decree, finding that "the record contains no legitimate basis on which the Court could conclude that capping [the waste storage ponds] allows an unreasonable health risk to go unchecked."

The Tribes appealed to the Ninth Circuit Court of Appeals contending, among other things, that the U.S. had violated its trust duty to the Tribes. The Ninth Circuit Court upheld the CD stating that:

> …the record discloses a diligent assertion of RCRA claims by the government, a fair and extensive consultation with the Tribes, and a reasonable settlement reached at arm's length between the government and FMC. The United States therefore satisfied its general trust duty to the Tribes.

In responding to the Tribes' contention that the waste must be dredged and treated rather than capped, the 9th Circuit Court found that RCRA 40 CFR 265.228 permits closure of waste ponds either by removing the waste, or by leaving the wastes in place and installing a protective cap. The Court found that the Tribes had not presented any evidence that capping the ponds poses a threat to human health or the environment. The Tribes' request for a rehearing by the Ninth Circuit was denied by the 3 judge panel. The Tribes' then petitioned in the U.S. Supreme Court for a writ of certiorari which was also not granted.

There has also been extensive legal proceedings in Federal and Tribal courts on the applicability of Tribal permit and fee requirements to FMC's waste management.

Hope that's helpful. Let me know if you have any questions.

Andy

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Though the project does not directly address other communities that are further downwind from the FMC plant, the results of the study may prove useful to those communities in connection with evaluating whether there are grounds for concern about the impacts of airborne pollution.

## COMMENTS OF THE SHOSHONE-BANNOCK TRIBES

Comments from the Shoshone-Bannock Tribes were submitted in the form of three documents: 1) a Resolution of the Fort Hall Business Council, the elected governing body of the Shoshone-Bannock Tribes; 2) a petition signed by 472 tribal members; and 3) a document denominated "Comments" on the proposed Consent Decree. Comments contained in this latter document are addressed in Sections I through VI, infra. The Resolution and petition are addressed in Section VII, infra.

### I. Comments - Injunctive Relief:

#### A. Summary of Comment - Operating Out of Compliance:

*The Consent Decree allows FMC to operate their facility in violation of RCRA's land disposal regulations and interim status requirements. As the Consent Decree does not require FMC to have an approved treatment process until 2002, it necessarily assumes that FMC will seek and EPA will grant FMC two National Capacity Variances to postpone compliance with these requirements until that time. Under the Consent Decree, FMC will be permitted to place hazardous wastes in surface impoundments until the treatment plant is built.*

See Shoshone-Bannock Comments at pp. 12-13.

#### Response:

The Consent Decree requires FMC to operate in compliance with RCRA's land disposal restrictions. Nothing in the Consent Decree exempts FMC from applicable LDR requirements or guarantees the grant of extensions.

With respect to RCRA's interim status requirements and FMC's operation of interim use ponds, the Consent Decree establishes an ambitious schedule for FMC to come into compliance. Immediate compliance is not technically possible, as the treatment of FMC's wastes to remove their hazardous characteristics depends upon the design and construction of a treatment plant. The compliance schedule set forth in the Consent Decree also includes strict operating requirements to protect human health and the environment during the compliance period. As FMC cannot operate without generating hazardous waste, and cannot treat these wastes until a treatment plant is constructed, a refusal to permit FMC a compliance schedule would require the facility to shut down. These matters are discussed in more detail below.

Land Disposal Regulations

The Consent Decree requires FMC to design and construct a treatment plant that will remove the ignitability and reactivity characteristics of its wastes, and therefore allow FMC to dispose of the treated wastes in compliance with the Land Disposal Requirements set forth in 40 C.F.R. Part 268, no later than May 2002, which is the final statutory deadline for compliance. As discussed more fully below, EPA believes that this is the shortest practicable schedule for completion of the required treatment plant.

RCRA's land disposal restrictions ("LDRs") prohibit the placement of hazardous wastes on the land unless such wastes either comply with EPA-specified treatment levels or are determined by EPA to be protective of human health and the environment based on a petitioner's demonstration that there will be "no migration" of hazardous constituents from the disposal unit for as long as the wastes remain hazardous. Pursuant to RCRA Section 3004(d)-(g), the LDRs become effective on a phased statutory prohibition schedule. Land disposal restrictions applicable to waste from the production of elemental phosphorus were promulgated in the Phase IV LDR rule on May 26, 1998. 63 Fed. Reg. 28556. A two year national capacity variance was granted as part of that rule making. Therefore, LDRs for FMC's waste go into effect on May 26, 2000, and may be extended by EPA for no more than two years under 40 C.F.R. § 268.5.

In order to continue to discharge wastes that do not meet LDRs after the May 26, 2000 effective date and until the required startup of the LDR Treatment System on or before May 1, 2002, FMC will need to demonstrate that it meets the criteria for any variances or extensions of the LDR applicability date, and obtain case by case extensions from EPA under 40 C.F.R. § 268.5. Case by case extensions can be granted for one year and may be renewed for an additional year only once. In order to qualify for an exemption in accordance with EPA's regulations, FMC must demonstrate that alternative treatment, recovery or disposal capacity cannot reasonably be made available by the effective date. If an extension is not granted, FMC will be subject to the LDR prohibitions. Paragraph 7 of the Consent Decree provides that all activities undertaken by FMC pursuant to the Consent Decree shall be performed in accordance with the requirements of all applicable federal, state and local laws and regulations.

The Consent Decree requires FMC to begin work immediately on the testing and design of the waste treatment system, and includes a schedule for submitting design and operating information and obtaining approval from EPA. EPA has already been working closely with FMC as it considers alternative treatment technologies and expects to continue interacting frequently with FMC to ensure that the system is designed and constructed so that it will meet the performance

standards specified in the Consent Decree and can be operated in a safe and protective manner.

At EPA's urging, FMC has been evaluating different technologies for the treatment plant which might reduce or eliminate the need for thermal treatment of gases, to which the Tribes object. FMC has evaluated several technologies and has begun to focus on an aggressive hydrolysis technology. Pilot testing of these technologies is necessary to ensure that the technology will be effective and reliable and satisfy the performance and operating requirements specified in the Consent Decree before procurement of equipment and construction can begin. Detailed engineering designs must also be completed before FMC can begin procurement of the equipment. Under the Consent Decree EPA will also be seeking public input on the design documents, operating plan, performance information, and all the supporting documentation for the system before giving FMC permission to start the system.

Substantial time was spent during negotiations discussing the requirements for FMC's construction of a treatment plant and setting the shortest possible schedule for completion of the plant that allows adequate time for design and construction and public input. The Tribes were represented at these meetings, and all information obtained from FMC relating to the technical challenges and proposed timetable were shared with the Tribes. The resulting schedule addresses time frames needed for design, engineering, equipment acquisition, construction, startup testing, and permitting requirements. It also reflects the fact that much of the equipment to be used by FMC in the treatment plant will have to be fabricated specifically for this project, thus requiring more time to complete procurement and construction than would be needed if the plant could utilize standard off-the-shelf components. EPA believes that FMC has committed to an ambitious but achievable schedule for these improvements.

However, in light of the Tribes' comments, EPA once again has reviewed the schedule to determine if it could be shortened, and determined that it cannot be accelerated without eliminating or modifying performance and design requirements included to ensure that it will be constructed and operated in a manner that will be protective of human health and the environment. The United States is satisfied based upon the technical presentations made by FMC that an appropriate treatment system capable of meeting EPA's requirements could not be designed, constructed and put into operation prior to May 2002.

Interim Status Requirements

FMC cannot operate without generating hazardous wastes. These wastes cannot be treated in order to remove their ignitable and reactive characteristics prior to the construction of the LDR treatment system. Thus, in order to avoid shutting down the facility pending construction of the treatment plant, the Consent Decree, specifically Attachment A, Paragraph 20, establishes a schedule for FMC to come into compliance with RCRA interim status

requirements to treat ignitable and reactive hazardous waste before it is placed in surface impoundments. 40 C.F.R. Section 265.229. This schedule is based in part on the schedule for the construction of the treatment plant, as discussed above.

During the period in which FMC will remain out of strict compliance with RCRA interim status requirements, pending the completion of the LDR Treatment Plant, the Consent Decree requires FMC to employ stringent controls and meet closure schedules for continuing pond operations. As described below, these requirements will insure that the continued operation of the facility until the treatment plant becomes operational will not result in any substantial additional long term accumulations of untreated wastes in ponds.

First, the Consent Decree required FMC to cease discharges to the Phase IV Ponds by December 1, 1998. Discharges to Ponds 8E and 9E ceased in January 1997 and October 1996, respectively. Pursuant to the Consent Decree, closure plans for the Phase IV Ponds, Ponds 8E, 9E and 15S have already been submitted and are being reviewed by EPA. FMC is required under the Consent Decree to dewater and complete initial fill of Ponds 8E, 15S and the Phase IV ponds by the end of this year.[2/] Under the Consent Decree, FMC is also required to install secondary containment as required by RCRA regulations at its hazardous waste tanks, sumps and pipelines by September 30, 1999, and to immediately satisfy RCRA requirements for treatment without a permit at the furnace building slurry pots.

Second, the Consent Decree requires that FMC discharge its wastes only to new ponds 16, 17 and 18. These ponds have double liners, leak detection systems, and meet all of EPA's minimum technology requirements. Also, at the Tribes' request, the Consent Decree requires an electronic leak detection system at Pond 18. In addition, the new ponds are subject to a strict set of operational controls set forth in the Pond Management Plan, which is incorporated by reference into the Consent Decree. The Plan, which is further discussed below, includes a variety of measures to reduce releases and minimize impacts to the health of workers, residents, and others who might be exposed.

Third, FMC's construction and use of the new ponds has been permitted by the Shoshone-Bannock Tribes. On April 13, 1998, FMC obtained a building and special use permit for Ponds 17 and 18 from the Shoshone-Bannock Tribes Land Use Policy Commissioners, subject to payment of a $1.0 million start up fee and $1.5 million annual permit fees to be paid to the Hazardous Waste Program of the Land Use Department of the Shoshone-Bannock Tribes.

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[2/] The schedule for Pond 15S may be delayed by up to a year for technical reasons, due to the need for special equipment in light of the large size of this pond.

Fourth, the Consent Decree permits FMC to discharge its waste to Ponds 16, 17, and 18 only until startup of the treatment system on May 1, 2002, and only if the following conditions are met: 1) the ponds otherwise comply with RCRA; 2) FMC complies with the Consent Decree schedule for developing, designing and constructing the treatment plant; 3) the treatment plant operating and design documents are approved by EPA by December 1, 2000; and 4) FMC complies with the Pond Management Plan, which is further described below.

Fifth, EPA has required that FMC develop and implement a Pond Management Plan that imposes stringent interim operating conditions on the use of ponds pending completion of the treatment system. The Pond Management Plan requires FMC to undertake extensive measures to protect human health and the environment during the time these ponds are in operation. For example, FMC must:

- install monitors around the ponds that will continuously measure, and record phosphine and hydrogen cyanide;
- modify worker safety procedures to ensure proper training and to ensure that workers are evacuated or use protective equipment if toxic gases exceed specified limits;
- evaluate monitoring results to identify operational changes that could reduce toxic gas generation;
- monitor at a number of specified points along the facility fence line for phosphine and hydrogen cyanide every 4 hours, and monitor off-site in the event that phosphine or hydrogen cyanide exceeds specified concentrations that could pose a risk to individuals off-site;
- coordinate the evacuation of any off-site area with local emergency response officials in the event phosphine or hydrogen cyanide is detected off-site at concentrations exceeding acute exposure guideline limits;
- expand existing fencing to include the entire pond area;
- separate the phossy water and NOSAP waste streams to reduce generation of hydrogen cyanide;
- inspect ponds every 4 hours around the clock;
- install a video camera system to provide continuous real time remote access surveillance of the ponds;
- install continuous pond level recording and alarm devices at the new ponds to detect changes in water levels that could cause fires or overtopping;
- cease placement of containerized phossy wastes in Pond 16; and
- provide periodic reports on pond operations.

The Pond Management Plan also requires FMC to take measures to prevent birds from coming into contact with the interim use ponds that will operate

pending completion of the LDR Treatment System. FMC is required to either install nets over the ponds or float plastic balls over the entire surface of the ponds. These measures are designed to keep the birds out of the ponds. A net has now been installed on Pond 17, and one is currently being constructed on Pond 18. Plastic balls are currently being floated on Pond 16S, and FMC must ensure that these balls cover the entire pond surface in order to remain in compliance with the Consent Decree.

The Shoshone-Bannock Tribes commented extensively on the Pond Management Plan during negotiations, and it was the Tribes' concerns that resulted in the Plan's stringent requirements relating to electronic leak detection, perimeter gas monitoring, and bird protection. The Tribes' permits for these ponds impose similar conditions on construction and operation of the new ponds.

The new toxic gas emission continuous monitoring system at the pond was installed by 12/31/98. Expanded monitoring at the fence line has already begun, bird balls have been placed in Pond 16S, the net over Pond 17 is complete, and construction of the net for Pond 18 has begun.

Sixth, the Consent Decree requires that wastes that accumulate in Pond 18 be removed and treated within five years after the treatment plant commences operation. Any waste other than precipitator slurry that has undergone treatment using the NOSAP treatment process that is discharged to Pond 17 must also be removed and treated within five years. The NOSAP treatment process was designed by FMC to reduce the chance that its precipitator slurry waste will fail EPA's test for determining if metals will leach from the waste in dangerous concentrations (see 40 C.F.R. § 261.24), and also serves to reduce the ignitability of the waste. The process includes the addition of lime in accordance with criteria for pH and residence time and temperature specified in the Pond Management Plan at section 3.2.2.1. Discharges to Pond 16, which meets minimum technology requirements will be relatively small, because much of its capacity has already been filled, and are expected to cease by late summer 1999. Pond 16 must be closed in accordance with an approved closure plan.

In sum, in order to continue to discharge their waste to ponds until the treatment plant is operating, FMC must: use only the newer ponds that have double liners and leak detection capability; inspect the ponds every four hours around the clock; monitor continuously around the ponds and evacuate the area or provide special protective equipment if concentrations exceed specified levels (that are at or below OSHA and NIOSH standards); monitor at the fence line to ensure people off-site won't be adversely impacted; fence the area and install nets or bird balls to protect wildlife; and stay on schedule in designing and building a treatment plant. FMC must also abide by the special use permits issued by the Tribes for these ponds. EPA has determined that the interim operation of these

replacement ponds under these conditions does not pose a demonstrable risk to human health and the environment, and has viewed the Shoshone-Bannock Tribes' decision to permit these ponds as reflecting this same determination. Absent a compliance schedule allowing the interim use of the new ponds, FMC would have to shut down its facility.

**B. Summary of Comment - Continued Generation of Waste:**

*The Consent Decree allows FMC to generate tons of hazardous waste until a treatment process or plant is designed. FMC should be forced to cease or substantially decrease its generation of hazardous wastes until a treatment technology is developed and implemented. The treatment technology must be a proven technology which can render the hazardous waste streams non-hazardous and no longer pose a threat to human health and the environment.*

Shoshone-Bannock Comments at p. 13.

**Response:**

Requiring FMC to cease or curtail its hazardous waste production would require substantially shutting down the facility, as waste generation cannot be reduced without a commensurate reduction in production. Such a production shut-down or slow-down until May 2002 would cause significant job losses at the Pocatello plant during this time period. The Pocatello plant currently employs a total of 622 people, including 475 employees at the plant itself, 70 employees at the Dry Valley Mine that provides phosphate ore exclusively to the plant, and 77 employees at an FMC plant in Kemmerer, Wyoming, whose only product is coke that is sent to the Pocatello plant. The Pocatello plant also employs an average of about 40 contract employees on a full-time basis, and approximately 200 craft employees during the summer construction season.

A reduction in production at the Pocatello plant also would cause a substantial decrease in employment at the FMC plants in Green River, Wyoming; Lawrence, Kansas; Carteret, New Jersey; and Nitro, West Virginia, which use phosphorus produced in Pocatello as the key raw material in their production processes. More than 450 people are currently employed at those plants.

Finally, because there are few if any other sources for high-purity elemental phosphorus, reducing the Pocatello plant's production would cause shortages for producers and consumers in the food products, semiconductor, plastics, water treatment and cleanser manufacturing industries and other sectors. Although FMC itself has been exploring alternative sources of high-quality phosphorus, an immediate replacement supply is not available. Securing, developing and managing the transition to these sources would require construction of new facilities that would take at least two to three years, during

which the above described employment and economic losses could not be avoided.

Due to these concerns, any demand by the United States that FMC close the facility or substantially reduce production would have required lengthy litigation involving a battle of experts and complex judicial findings as to the degree of injunctive relief required. See Weinberger v. Romero-Barcelo, 456 U.S. 305 (1982). In all likelihood, such a course would not have brought FMC into RCRA compliance any faster than the compliance schedule established under the Consent Decree.

This settlement, which allows FMC to come into full RCRA compliance over a schedule tied to the construction requirements for the LDR Treatment System, and with operational controls designed to protect human health and the environment during the compliance period, as described in the United States' Response to Comment I(A), was deemed a preferable outcome. Nevertheless, had EPA not been able as part of this settlement to require implementation of operative controls and safeguards sufficient to protect human health and the environment during the compliance period, then the United States would have sought to shut down the facility regardless of the economic consequences to FMC or the amount of litigation required.

With respect to the Tribes' comment that the LDR Treatment Plant should use a "proven technology," it must be understood that the technologies FMC is evaluating are proven technologies. They have been employed successfully for waste treatment at other facilities. They are not experimental or unproven. However, FMC must establish that these technologies can treat FMC's particular waste stream and meet the stringent performance standards specified in the Consent Decree.

FMC had considered using a caustic hydrolysis process in which wastes that contain phosphorus first react with lime, as currently done in the NOSAP treatment of precipitator dust, to reduce the amount of elemental phosphorus. FMC is now focusing on an aggressive hydrolysis/wet chemical oxidation technology developed by Zimpro and used extensively for wastewater treatment, and a similar process in which air would be excluded. The final selection is expected to be made by May 1, 1999. Phosphine and hydrogen cyanide in the gas stream released from the LDR treatment plant will be captured and treated in accordance with EPA approved design and operating requirements.

As part of the treatment, the wastes must be stabilized (by adding cement), as required by the Consent Decree, to permanently and irreversibly bond the waste into the molecular structure of a solid product such that the treated waste will not undergo changes that cause it to release toxic gases or leach heavy metals in concentrations greater than the applicable LDRs.

Regardless of what technology is selected for the treatment plant, the treated waste must meet the strict performance standards for gas emissions, leachability of metals and permanence in the Consent Decree. FMC must demonstrate that its design can meet these performance requirements before EPA will allow it to start up the plant. Continuing operation of the LDR treatment plant will include monitoring to ensure all wastes generated meet these requirements. EPA will continue to work with FMC to ensure that the system is designed and constructed so that it will meet the performance standards specified in the Consent Decree and can be operated in a safe and protective manner. EPA also will provide the public with an opportunity to comment on the design and operating plans before approving them. The plant will not be allowed to operate unless it meets the performance requirements.

As described in the United States' Response to Comment I(A), EPA worked extensively with FMC to set the shortest possible schedule for completing the treatment plant that allows adequate time for design and construction and public input, and believes that the schedule cannot be accelerated. The Tribes were represented during these meetings.

**C. Summary of Comment - Pond Closure:**

*The Consent Decree allows FMC to cap its hazardous waste ponds without deactivating and stabilizing the waste material. This does not meet RCRA capping requirements, which require FMC to minimize long term maintenance and to prevent to the greatest extent practicable releases to the environment. Over the past 50 years, FMC has created approximately 28 ponds filled with ignitable or reactive waste covering approximately 123 acres. Contaminants from these ponds within the soil column will continue to migrate into the aquifer. Capping the waste will not prevent contaminants from migrating into the aquifer. In addition, the Consent Decree only requires monitoring of the caps for thirty years, while the hazardous phosphorus bearing waste under these caps will remain reactive and ignitable for up to 10,000 years. Although the wastes in ponds 18A and 18B eventually will be excavated, deactivated and stabilized once FMC's treatment plant is constructed, the settlement gives FMC until 2007 to do this. Excavation, deactivation through treatment and stabilization of waste in all ponds, and certainly in active ponds 16S and 17S should occur prior to disposal.*

Shoshone-Bannock Comments at pp. 13-15.

**Response**:

RCRA regulations give a facility the option at closure of either removing the waste from surface impoundments OR leaving the waste in place and capping the unit as a landfill. 40 C.F.R. § 265.228. Nevertheless, and at the Tribes' request, EPA went to considerable effort to determine whether the risks

associated with leaving the waste in place were sufficient to justify seeking a court order to compel FMC to remove and treat the waste. In light of the option provided at 40 C.F.R. § 265.228 to close with the waste in place and the considerable cost and technical difficulties of removing and treating waste already disposed of in the ponds, FMC made clear that it would not agree to remove and treat the waste. The Tribes were represented at a series of meetings with FMC over a period of several months during which this issue was addressed.

In evaluating the risks associated with leaving the waste in place, EPA sampled the groundwater to see if elemental phosphorus was moving into the groundwater from the ponds. To obtain analytical data regarding the mobility of phosphorus to the groundwater, EPA sampled wells at the facility for elemental phosphorus. The objectives of the sampling were 1) to determine whether the groundwater at the facility is contaminated with site related phosphorus compounds and characterize the contamination if present, and 2) determine whether the related phosphorus compounds are being discharged to the Portneuf River. The concentration of elemental phosphorus adjacent to and down gradient from Pond 8S was of specific interest as this Pond is unlined and has resulted in metal contamination of the groundwater. To achieve these objectives, on January 1 through January 15, 1998, EPA collected groundwater samples from 21 wells and a sediment sample and surface water samples from two springs down gradient. The groundwater samples were analyzed for field parameters, including dissolved oxygen, pH, temperature, specific conductivity, and oxidation reduction potential (Eh). Groundwater samples were also analyzed at the laboratory for orthophosphorous, total phosphorus, white phosphorus, nitrite and nitrate. Four samples were analyzed for total dissolved solids (TDS) and anions (chloride, fluoride, and sulfate). Spring water samples were analyzed for orthophosphorous, total phosphorus, orthophosphorous, white phosphorus, nitrate and nitrite, and Eh. Sediment samples were analyzed for total phosphorus, orthophosphorous and white phosphorus. The results of these analyses indicate that elemental phosphorus has not migrated into the groundwater as a result of releases from 8S. It appears that elemental phosphorus is relatively immobile under these conditions. These sampling results were shared with the Tribes.

In addition, because sediments in the ponds may be ignitable, reactive or radioactive, EPA determined that it would not be safe or practical to ship the waste off-site for treatment. Due to the great volume of sediment in the ponds, and the technical difficulty of removing it, treatment on-site after the treatment plant was designed and built would take many years. The cost of such on-site treatment, in excess of $75 million, was also relevant, in that FMC would not agree to this option in settlement and the prospect of obtaining this type of injunctive relief in litigation was not assured. See Weinberger v. Romero-Barcelo, 456 U.S. 305 (1982). However, as explained below, EPA is confident

that the pond capping requirements of the Consent Decree will protect human health and the environment.

Under the Consent Decree, wastes in Pond 18 must be removed and treated in the LDR Treatment plant within 5 years after the treatment plant begins operation. This schedule was negotiated with FMC, with participation by Tribal representatives. FMC sought a longer schedule. Any acceleration of the schedule would require design and construction of a larger treatment plant, which FMC objected to. Given the extensive leak and toxic gas detection and pond management requirements for Pond 18, EPA is confident that this schedule is protective.

Also, in the event that FMC deposits in Pond 17 any phossy waste other than precipitator slurry treated using the NOSAP process and meeting the criteria for NOSAP waste set forth in the Pond Management Plan, Pond 17 shall be subject to the same sediment removal and treatment requirements as Pond 18.

All other ponds will be closed with wastes left in place in accordance with RCRA closure regulations. The Phase IV Ponds and Ponds 15S and 16 will be closed using techniques developed by FMC for closure of pond 8S. Caps for these ponds will be more protective than what is normally required for RCRA closure and will include, in addition to a geosynthetic barrier, a seven foot capillary barrier composed of soils and sands to enhance evapotranspiration. This cap design is comparable to one being designed for radioactive waste landfills which may be dangerous for thousands of years. This is a durable largely soil based cap that promotes evapotranspiration to minimize migration of precipitation through the cap and requires little maintenance other than maintaining the vegetative cover. In addition, a leak detection and removal system will be placed between the capillary barrier and the geosynthetic to assure that the capillary barrier is minimizing migration of liquids to the geosynthetics and underlying wastes. This minimizes the potential for groundwater contamination. Long term maintenance and monitoring will be required.

Most of the waste placed in Pond 8E has been treated using the NOSAP process. Most of the waste placed in Pond 9E has been removed. These ponds do not pose the same kinds of risks that the Phase IV Ponds and Pond 15S do. Nevertheless, the Consent Decree requires a RCRA cap for these ponds which includes soil and geosynthetic components. The requirements are the same as for the Phase IV Ponds and Pond 15S except the capillary barrier is not required. The Consent Decree does not allow FMC to create new ponds which would then be closed without waste treatment.

Removal of water from the ponds is expected to significantly reduce any migration of contamination from the ponds to the groundwater by minimizing hydrostatic pressure. Capping the units will minimize the amount of precipitation

which could infiltrate the waste and carry hazardous constituents from the surface impoundments to the groundwater.

Because phosphine, hydrogen and hydrogen cyanide could be created by waste decomposition or other reactions, temperature and pressure under the caps will be measured and recorded continuously. If gases are generated at levels of concern, the gas will be collected and treated.

These features of the caps to be installed over the waste ponds are designed to minimize the need for further maintenance, and to minimize, eliminate or control releases as necessary to protect public health and the environment, and to meet other applicable RCRA requirements. FMC is required to maintain the integrity and effectiveness of the final cover. Under RCRA, post closure care must continue for 30 years. EPA may extend the post closure period as necessary to protect human health and the environment. There is no limit on extensions to the post closure period. The post closure period will be specified in the permit for the FMC facility. The public will be provided an opportunity to comment on the post closure requirements of the permit. The permit requirements for post closure will be renewed and remain in effect so long as necessary to be protective.

Under the closure and post-closure plans for the ponds, FMC will continue to analyze the monitoring wells around the ponds for elemental phosphorus after closure to ensure that phosphorus is not contaminating the ground water. In addition, sumps at each of the operating ponds will be checked weekly for the presence of leachate and the flow rate from the leachate collection wells will be evaluated to determine if it exceeds 50% of the EPA approved action leakage rate. If it does, further investigations to determine whether there are any impacts to groundwater below the pond will begin. All of these actions are described in detail in the Response Action Plans for Operating Ponds [Appendix O of the Pond Management Plan].

EPA believes that the cap construction, operation and monitoring requirements required by the Decree are protective of human health and the environment. All information obtained or developed during the course of negotiations relating to cap requirements was shared with the Tribe.

There are other ponds at the FMC facility that are not subject to RCRA hazardous waste closure requirements; these are being addressed in the CERCLA Record of Decision issued for the Eastern Michaud Flats Superfund Site ("ROD"). The Superfund program primarily focuses on cleanup of past releases of hazardous substances, and defers to RCRA to address ongoing releases of hazardous waste that are subject to RCRA regulations. The Eastern Michaud Flats Superfund Record of Decision requires the closure of older, unused ponds at the site, and is consistent with current RCRA pond closure

requirements. Further information regarding groundwater contamination and the ROD is provided in the United States' Response to Comment II(A), infra.

**D. Summary of Comment - Waste Remains on Reservation:**

*The Consent Decree allows FMC's wastes to remain on the Fort Hall Reservation. The United States ignored the Tribes' demand that these wastes be removed, thus depriving the Tribes of ultimate environmental control of their lands and allowing a non-Indian business located on 150 acres of the 544,000 acre Reservation to "contaminate and virtually destroy" the Tribal environment.*

Shoshone-Bannock Comments at pp. 15-16.

**Response:**

The United States may only bring enforcement action and obtain injunctive relief as authorized by law. RCRA does not provide unfettered, unilateral authority to require the removal of hazardous wastes. Obtaining injunctive relief against FMC in litigation would depend first upon proof of FMC's liability, and second upon a judicial assessment of the degree of necessary relief. See e.g. Weinberger v. Romero-Barcelo, 456 U.S. 305 (1982). RCRA does not permit the Tribes to bring an independent enforcement action if the United States has taken action to address violations.

Although the 150 acre FMC facility is on the Fort Hall Reservation, the facility itself is on private land owned in fee by FMC. The Consent Decree does not allow any FMC wastes to be disposed of or to remain on tribal land outside of the area of FMC ownership. Also much of the waste that has been disposed of at the FMC facility was disposed of before RCRA became law and is not subject to the hazardous waste closure rules. Moreover, given the regulatory option given to all facilities under RCRA to close surface impoundments in place, 40 C.F.R. § 265.228, and the lack of any evidence of migration of phosphorus from the FMC ponds that would justify dredging and deactivation, the United States does not believe that complete removal of the wastes from the FMC's ponds that are subject to RCRA's closure rules could be obtained under RCRA even after lengthy litigation.

More importantly, as discussed in the response to the proceeding comment, EPA is confident that the cap requirements for closure of FMC's ponds will protect human health and the environment. Given the contours of the law, the United States believes that the proposed Consent Decree represents the best result that could be obtained under RCRA for the protection of the environment and the Tribes' heritage.

**E. Summary of Comment - Construction of Incinerator :**

*FMC's new waste treatment plant will include a thermal oxidizing unit, combustion unit or after burner to oxidize off-gas emissions from hazardous waste treatment systems, which the Tribes oppose as an incinerator. The United States has ignored the Tribes' objections in this regard.*

Shoshone-Bannock Comments at pp. 16-17.

**Response:**

The United States in negotiating the Consent Decree gave careful consideration to the Tribes' concerns about FMC's construction of a thermal treatment unit as part of the LDR Treatment Plant. The Consent Decree does not prescribe any particular method or technology for treating FMC's wastes and any gas that may be generated during treatment. However, after exploring the various treatment options available in light of the Tribes' concerns , the United States did not think it was appropriate to eliminate the thermal treatment option because it may well prove to be the most reliable option available, and the one most protective of human health and the environment. For that reason the Consent Decree requires FMC to demonstrate that the system selected can meet the EPA requirements for incinerators, which are more stringent and demanding than regulatory requirements for the other options.

FMC has considered using an enclosed burner/combustion device to destroy gases that are expected to be generated in the treatment plant. This unit would be much like the unit that will replace the excess CO flare pit. In addition, it would have a number of extra controls and features required for hazardous waste incinerators, such as strict operating limits tied into automatic hazardous waste feed management shutdown controls. High temperature oxidation (i.e., incineration) is a proven technology for destroying organics in wastes and gaseous streams, and properly designed and operated air pollution control systems have been demonstrated to effectively remove acid gases (i.e., HCL) and inorganics (i.e. metals, particulates, radionuclides) from gaseous streams. It must destroy or remove 99.99% of the non-metals (i.e., cyanide, phosphine, etc); and comply with strict standards for emissions of particulates and acid gases (i.e., HCL).

With respect to the Tribes' concern with the capability of hazardous waste incinerators to meet RCRA destruction/removal efficiency (DRE) requirements, the Agency is aware of studies cited by the Tribes in their comments in which over a wide range of input concentrations, the DRE achieved on organic contaminants appears to decrease with decreasing concentrations of contaminants in the waste feed. These data are generally believed to result from the formation of products of incomplete combustion, or PICs. Organic

compounds emitted from an incinerator generally come from two sources -- the unreacted fraction of the compounds in the feed, and PICs, which are new molecules formed through chemical reactions during the combustion process. When measuring the emissions of any compound from the incinerator stack, it is impossible to determine the percentage of the total that originated in the waste feed versus the percentage formed as a PIC. In a properly operated hazardous waste incinerator, PICs are generally thought to be formed in minute, but roughly constant, quantities. Thus, their emission rates are not expected to vary with the concentrations or organic compounds in the feed. The emission rates of undestroyed fractions of the waste feed, however, are believed to be directly proportional to their feed rate (thus, a properly operated hazardous waste incinerator can be assumed to destroy at least 99.99% of each organic compound in the waste feed.) When compounds are present in the waste feed at high concentrations, the PIC contribution to the total emissions tends to be negligible. As the waste feed concentration declines, the relative contribution of the PICs increases, eventually becoming the dominant emission source. As this occurs, the DRE, as calculated by comparing the feed rate to the total emission rate, declines.

These concerns about the DRE performance of incinerators are relevant largely to incinerators with a variable organic input stream of waste material that is harder to destroy and remove than is a relatively uniform, highly combustible off gas waste stream like that which would be incinerated under the proposed FMC thermal treatment approaches. Given what we know about FMC's waste stream, it is not very complex and we do not expect the formation of phosphine and cyanide as PICs would distort the DRE performance determination.

In addition, consistent with EPA's Hazardous Waste Minimization and Combustion Strategy first announced in May 1993, EPA made a commitment to upgrade the emission standards for hazardous waste burning facilities and adopted a national RCRA policy of strongly recommending that site-specific risk assessments be performed as part of the RCRA permitting process to assure permits for these facilities were sufficiently protective in addressing site-specific emissions of PICs, metals, and fugitives which are not specifically addressed in the existing regulations. The Consent Decree requires that an assessment of the risks from direct inhalation of stack emissions from the off-gas treatment facility be conducted before FMC can be permitted to start operations. That assessment must include an identification of all compounds (including radionuclides) which have the potential to be in the stack emissions and projected concentrations. See Attachment A, Appendix I (F). These include compounds in the wastes, compounds formed in the treatment process, compounds formed due to incomplete treatment, and compounds introduced in the treatment process. Also, in addition to the assessment of air inhalation risks, a site specific assessment of multi pathway human risks (i.e., inhalation, soil ingestion, food, etc) and ecological risks will be required to be performed prior to

EPA making a final permit determination for long-term operation of the FMC treatment process. Acceptable risk levels used by EPA in the past for hazardous waste combustion units (including incinerators) have been an excess cancer risk of 1 in 100,000, and a non-cancer hazard index of .25.

Revised standards for hazardous waste combusters (including incinerators) were proposed by EPA on April 19, 1996 and are projected to be promulgated as final this year. The Consent Decree requires FMC to comply with the most stringent of EPA standards for hazardous waste incinerators, including the proposed and the soon to be final standards.

EPA has reviewed the September 1997 issue of *Common Sense* referenced in the Tribes' comments emphasizing further their concern for the performance of hazardous waste incinerator facilities, and in particular the potential for upsets. It is understood that complex processes including hazardous waste incinerators will experience process upsets even when being operated as intended, or during periods of startup or shutdown, and that requiring hazardous waste feed cutoff when operations are outside of allowable limits can minimize emissions during these upset occurrences, but can not totally eliminate them. In recognition that elimination of all process upsets is not possible, EPA is requiring, as part of both of the site-specific risk assessments discussed above, that a conservative factor be included to account for possible increased emissions during these upsets.

It is important to note that the treatment facility being designed for FMC's very limited waste streams will not be anywhere near as complex as the Tooele, Utah facility, which according to the September 1997 article has suffered numerous safety violations. The Tooele facility system includes five incinerator systems; explosively configured, complex waste matrices; and specially designed weapons disassembly equipment. It also includes many more support systems than will be needed at FMC. That notwithstanding, any failure by FMC to operate its treatment facility in accordance with RCRA and approved operating plans will subject FMC to penalties and court action to compel compliance.

In light of the Tribes' concerns with thermal treatment, FMC, in concert with EPA and Tribal environmental staff, is further evaluating other options for treating the gas, such as absorption by activated carbon or removal in a bleach scrubber. These are being evaluated as part of the aggressive hydrolysis treatment technology. These options are also proven technologies that have been successfully employed at other facilities. However, it must be determined if they can be successfully employed at FMC given its waste stream and the stringent performance requirements of the Consent Decree.

Finally, the Tribes expressed concern that if FMC is unable to implement an incinerator by the 2002 deadline, the Reservation will be left with an additional 22.2 acres of hazardous waste in ponds 20 feet deep. As discussed above,

treatment of the waste may not involve an incinerator. Alternative technologies are being evaluated. The technologies that are being evaluated are established technologies, and the United States has no reason to believe that FMC will be unable to design and build a treatment plant that will meet the RCRA and Consent Decree requirements. Moreover, the Consent Decree mandates that FMC construct a treatment plant to meet approved performance standards. As provided in Paragraph 20 of Attachment A to the Consent Decree, FMC may only discharge waste to the ponds if, among other things, it is in compliance with the schedule and requirements for designing and building the treatment plant. In addition, any failure to proceed in accordance with the schedule in the Consent Decree would be a violation of the Consent Decree and subject FMC to penalties and enforcement action to compel compliance.

## II. Comments - Environmental Conditions

### A. Summary of Comment - Groundwater Contamination:

*Groundwater contaminated with arsenic, cadmium, fluoride and other toxic heavy metals from the leaking hazardous waste ponds at FMC is entering the Portneuf River.*

Shoshone-Bannock Comments at pp. 5-6.

**Response:**

Groundwater contamination resulting from historical pond operations at FMC is being addressed in the ROD for the Eastern Michaud Flats Superfund Site under CERCLA. The RCRA Consent Decree does not address the matter of historical contamination from prior pond operations, but deals rather with current pond operations and closure requirements. The following information from the ROD is presented herein, however, in the interest of providing complete information.

Site investigations conducted under CERCLA for the Eastern Michaud Flats indicate that groundwater contamination at FMC has not migrated off-site in concentrations that pose any significant risk to human health. Concentrations of contaminants in groundwater do not exceed drinking water standards known as Maximum Contaminant Levels (MCLs) in wells on Company owned properties north of Highway 86, at Batiste Spring or Swanson Road Springs. Groundwater concentrations are also below MCLs (and generally are at background levels) in wells on non-Company owned properties such as the City of Pocatello land north of Highway 86, and the Chevron tank farm and Rowlands property. Wells within the FMC plant area, particularly in the shallow aquifer, do exceed drinking water standards for some contaminants.